

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P437529

Luminaire Tested: **ISS-SA1D-740-U-T4FT**

Issue Date: 12/9/2020

Test Information

Test Method: LM-79-08
Report Number: P437529
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-10)
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISS-SA1D-740-U-T4FT
Description: IMPACT ELITE LED QUARTER SPHERE LUMINAIRE
(1) 70 CRI, 4000K, 800mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV FORWARD
THROW OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5673 lumens
Efficiency: N/A
Efficacy: 125.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

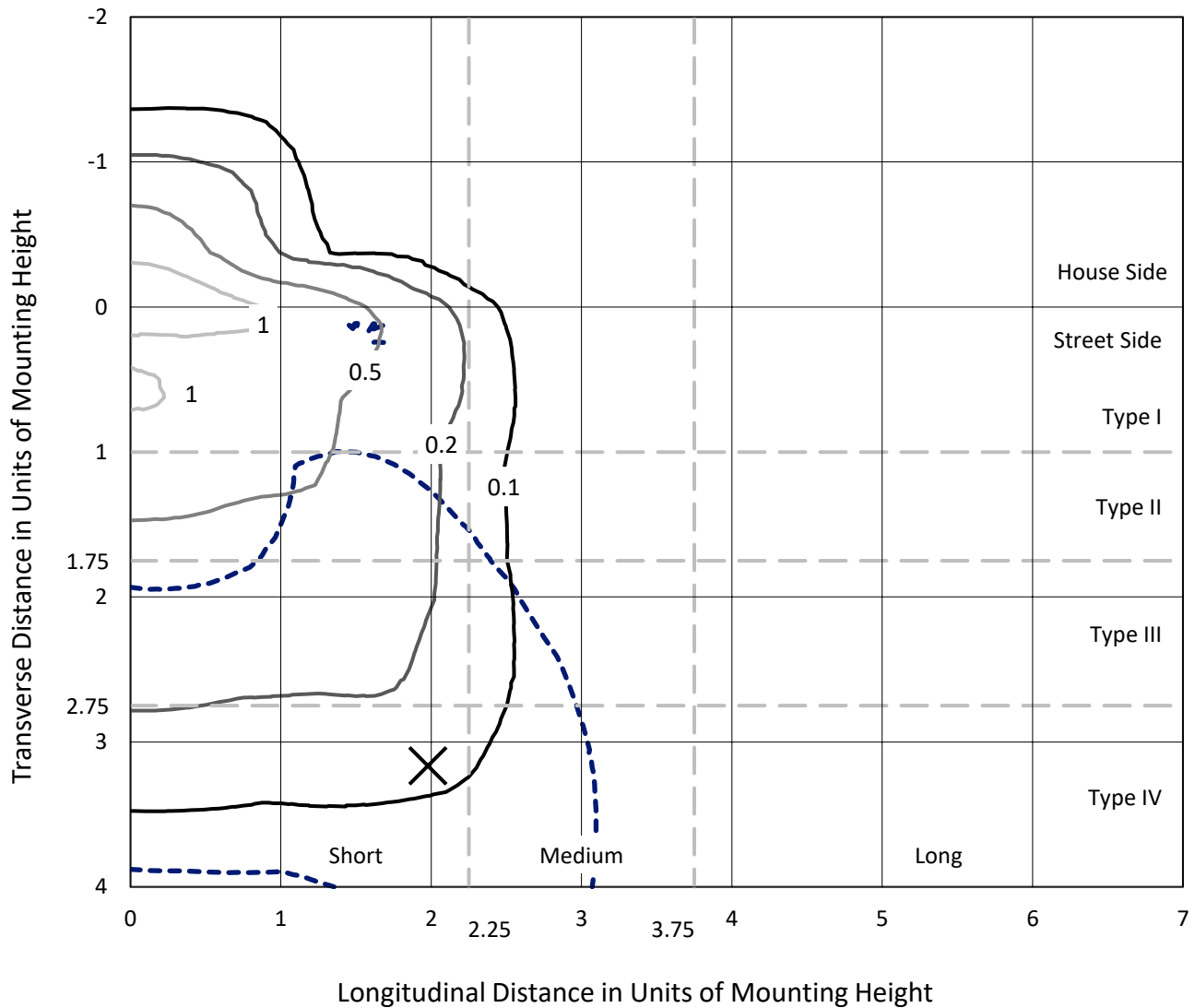
Input Watts (W): 45.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

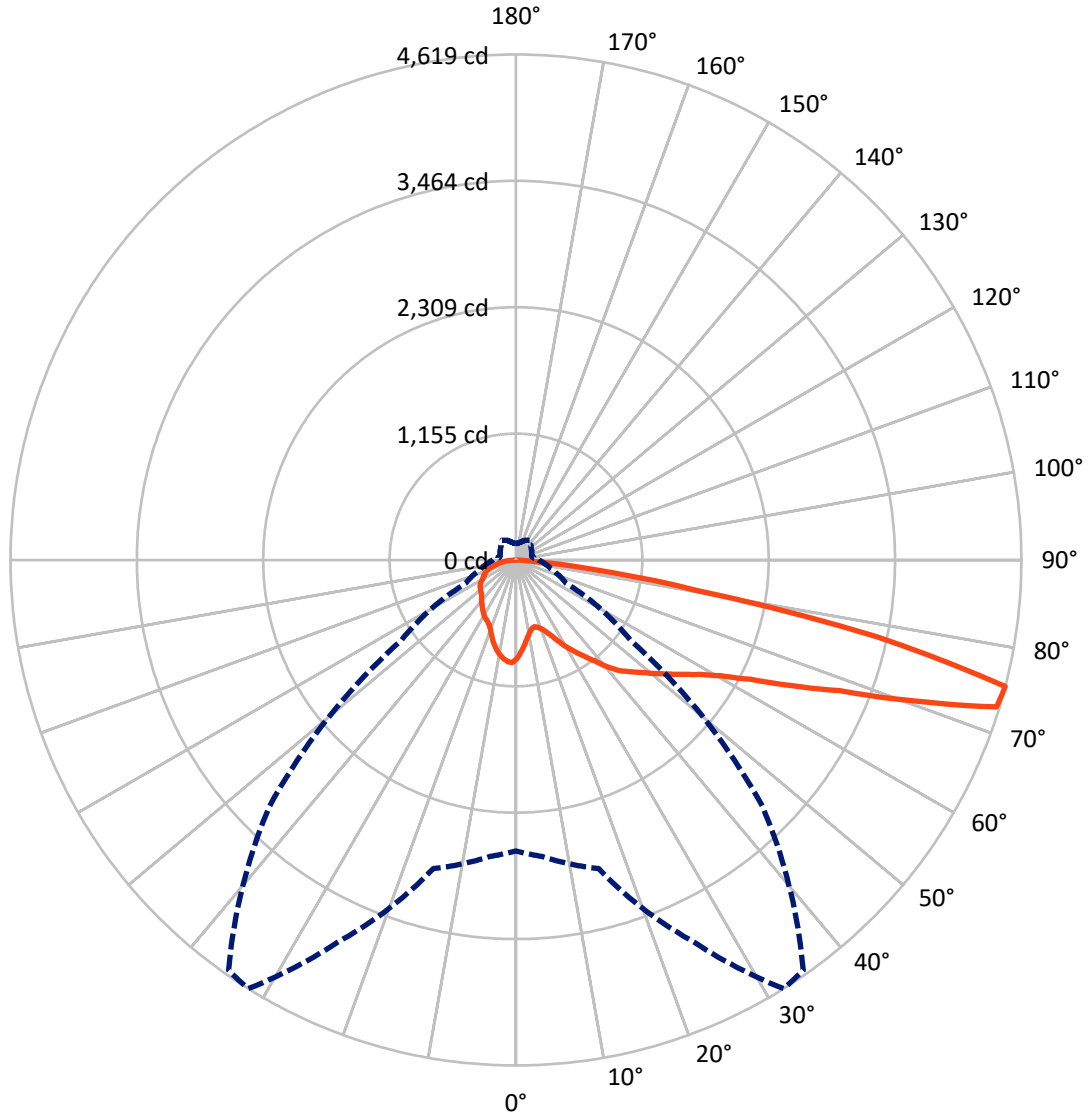
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.4 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 32-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

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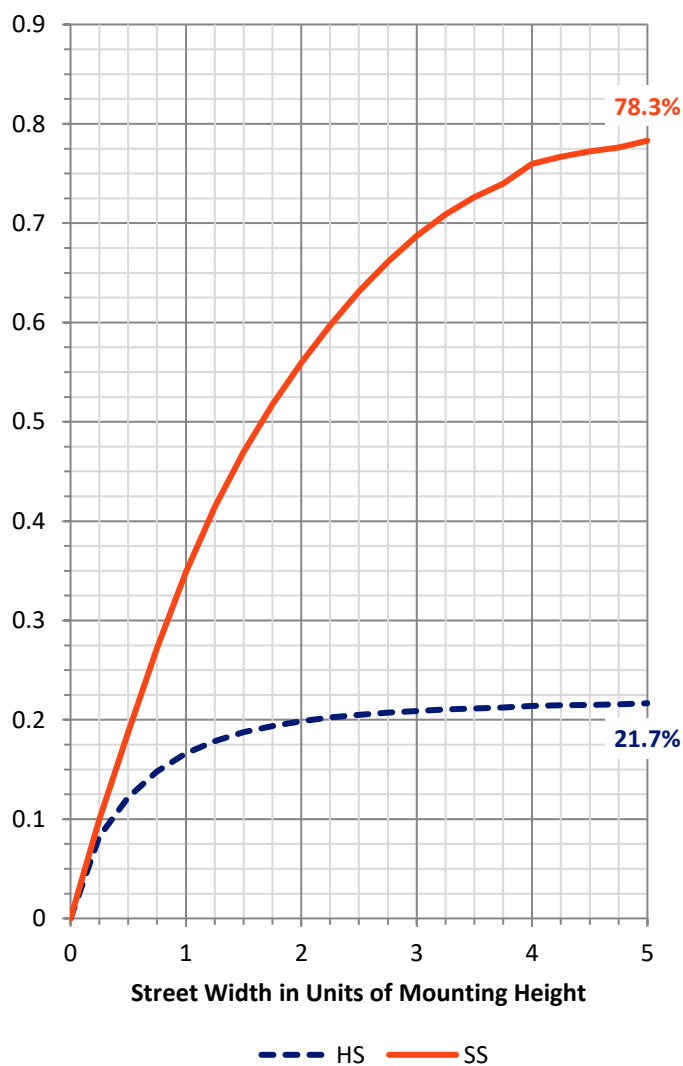
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1243.0 | 0.0 | 1243.0 |
| | % Fixture | 21.9 | 0.0 | 21.9 |
| Street Side | Lumens | 4430.0 | 0.0 | 4430.0 |
| | % Fixture | 78.1 | 0.0 | 78.1 |
| Total | Lumens | 5673.0 | 0.0 | 5673.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 82.0 | 1.4 |
| 10°-20° | 224.2 | 4.0 |
| 20°-30° | 371.0 | 6.5 |
| 30°-40° | 552.9 | 9.7 |
| 40°-50° | 787.2 | 13.9 |
| 50°-60° | 1083.1 | 19.1 |
| 60°-70° | 1365.0 | 24.1 |
| 70°-80° | 1103.4 | 19.5 |
| 80°-90° | 104.3 | 1.8 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 5673.0 | 100.0 |
| 0°-180° | 5673.0 | 100.0 |

Coefficient of Utilization



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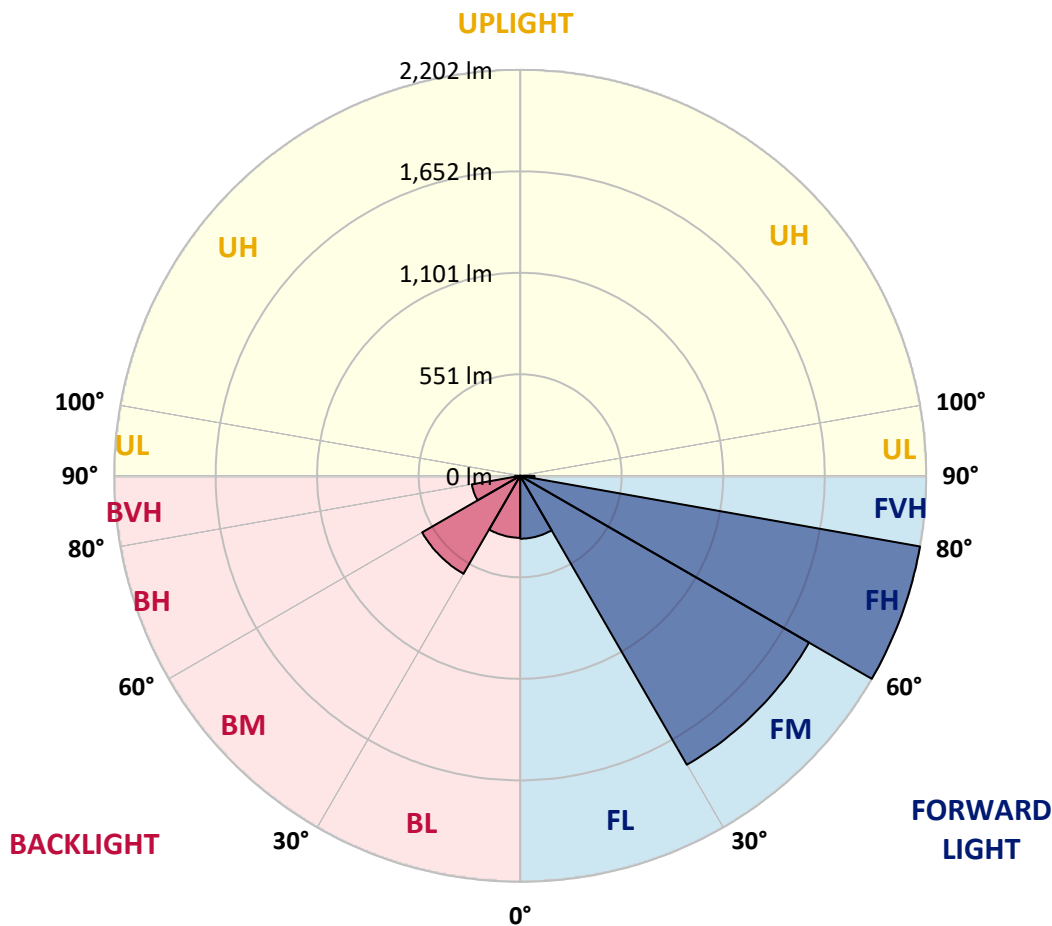
CATALOG NUMBER: ISS-SA1D-740-U-T4FT

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 341.1 | 6.0 | | | |
| FM (30°-60°) | 1809.3 | 31.9 | | | |
| FH (60°-80°) | 2202.2 | 38.8 | | | G2/5000 |
| FVH (80°-90°) | 77.5 | 1.4 | | | G1/100 |
| BL (0°-30°) | 336.0 | 5.9 | B1/500 | | |
| BM (30°-60°) | 614.0 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 266.2 | 4.7 | B1/500 | | G1/500 |
| BVH (80°-90°) | 26.8 | 0.5 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 |
| 2.5° | 824.7 | 830.9 | 833.0 | 837.1 | 845.4 | 841.2 | 851.5 | 863.9 | 880.4 | 888.7 | 905.1 |
| 5° | 754.6 | 754.6 | 760.8 | 771.1 | 785.6 | 785.6 | 804.1 | 826.8 | 855.7 | 878.3 | 907.2 |
| 7.5° | 692.8 | 692.8 | 699.0 | 711.3 | 725.8 | 736.1 | 758.8 | 793.8 | 833.0 | 876.3 | 913.4 |
| 10° | 641.2 | 643.3 | 647.4 | 659.8 | 678.3 | 688.7 | 721.6 | 760.8 | 812.4 | 868.0 | 919.6 |
| 12.5° | 622.7 | 620.6 | 618.6 | 628.9 | 643.3 | 651.5 | 688.7 | 738.1 | 797.9 | 866.0 | 931.9 |
| 15° | 637.1 | 633.0 | 626.8 | 626.8 | 633.0 | 637.1 | 668.0 | 719.6 | 785.6 | 863.9 | 946.4 |
| 17.5° | 674.2 | 670.1 | 655.7 | 641.2 | 645.4 | 647.4 | 668.0 | 709.3 | 779.4 | 872.2 | 967.0 |
| 20° | 725.8 | 719.6 | 694.8 | 676.3 | 672.2 | 672.2 | 684.5 | 715.5 | 783.5 | 888.7 | 993.8 |
| 22.5° | 787.6 | 781.4 | 752.6 | 719.6 | 715.5 | 713.4 | 719.6 | 740.2 | 795.9 | 907.2 | 1035.0 |
| 25° | 870.1 | 863.9 | 828.9 | 787.6 | 773.2 | 771.1 | 764.9 | 777.3 | 816.5 | 931.9 | 1063.9 |
| 27.5° | 958.8 | 960.8 | 919.6 | 863.9 | 849.5 | 843.3 | 826.8 | 824.7 | 841.2 | 952.6 | 1113.4 |
| 30° | 1041.2 | 1037.1 | 993.8 | 948.4 | 927.8 | 919.6 | 892.8 | 880.4 | 870.1 | 983.5 | 1171.1 |
| 32.5° | 1080.4 | 1086.6 | 1066.0 | 1022.7 | 1006.2 | 991.7 | 960.8 | 940.2 | 925.8 | 1030.9 | 1241.2 |
| 35° | 1146.4 | 1148.4 | 1140.2 | 1113.4 | 1080.4 | 1070.1 | 1041.2 | 1026.8 | 995.9 | 1088.6 | 1325.8 |
| 37.5° | 1212.4 | 1218.5 | 1216.5 | 1200.0 | 1171.1 | 1160.8 | 1136.1 | 1129.9 | 1068.0 | 1160.8 | 1430.9 |
| 40° | 1311.3 | 1301.0 | 1286.6 | 1292.8 | 1282.5 | 1276.3 | 1266.0 | 1245.3 | 1169.1 | 1239.2 | 1534.0 |
| 42.5° | 1418.5 | 1400.0 | 1348.4 | 1364.9 | 1379.4 | 1385.6 | 1400.0 | 1377.3 | 1274.2 | 1356.7 | 1618.5 |
| 45° | 1505.1 | 1490.7 | 1422.7 | 1426.8 | 1455.7 | 1476.3 | 1544.3 | 1531.9 | 1410.3 | 1484.5 | 1731.9 |
| 47.5° | 1554.6 | 1542.3 | 1494.8 | 1515.4 | 1534.0 | 1562.9 | 1694.8 | 1684.5 | 1538.1 | 1622.7 | 1868.0 |
| 50° | 1624.7 | 1604.1 | 1558.7 | 1595.9 | 1628.9 | 1651.5 | 1841.2 | 1837.1 | 1647.4 | 1764.9 | 2022.7 |
| 52.5° | 1663.9 | 1643.3 | 1639.2 | 1690.7 | 1729.9 | 1760.8 | 1997.9 | 1985.5 | 1754.6 | 1907.2 | 2169.1 |
| 55° | 1717.5 | 1721.6 | 1748.4 | 1787.6 | 1843.3 | 1894.8 | 2150.5 | 2088.6 | 1853.6 | 2047.4 | 2313.4 |
| 57.5° | 1835.0 | 1830.9 | 1882.5 | 1901.0 | 1973.2 | 2039.2 | 2331.9 | 2197.9 | 1936.1 | 2148.4 | 2381.4 |
| 60° | 1991.7 | 2000.0 | 2018.5 | 2066.0 | 2144.3 | 2245.3 | 2507.2 | 2311.3 | 1989.7 | 2220.6 | 2369.0 |
| 62.5° | 2288.6 | 2241.2 | 2233.0 | 2245.3 | 2400.0 | 2517.5 | 2678.3 | 2412.3 | 2012.4 | 2222.7 | 2239.2 |
| 65° | 2589.7 | 2571.1 | 2507.2 | 2538.1 | 2762.9 | 2870.1 | 2898.9 | 2478.3 | 1967.0 | 2094.8 | 1950.5 |
| 67.5° | 2901.0 | 2898.9 | 2830.9 | 2919.6 | 3189.7 | 3315.4 | 3144.3 | 2466.0 | 1818.5 | 1795.9 | 1499.0 |
| 70° | 3220.6 | 3235.0 | 3235.0 | 3486.6 | 3855.6 | 3888.6 | 3418.5 | 2348.4 | 1523.7 | 1272.2 | 876.3 |
| 72.5° | 3360.8 | 3369.0 | 3443.3 | 4002.0 | 4591.7 | 4602.0 | 3575.2 | 1993.8 | 1039.2 | 678.3 | 441.2 |
| 75° | 2657.7 | 2719.6 | 2919.6 | 3853.6 | 4618.5 | 4577.3 | 3185.5 | 1276.3 | 507.2 | 338.1 | 245.4 |
| 77.5° | 1043.3 | 1066.0 | 1472.2 | 2453.6 | 3364.9 | 3406.2 | 2061.8 | 509.3 | 257.7 | 214.4 | 177.3 |
| 80° | 294.8 | 309.3 | 521.6 | 975.2 | 1661.8 | 1837.1 | 820.6 | 220.6 | 173.2 | 156.7 | 127.8 |
| 82.5° | 105.2 | 119.6 | 193.8 | 373.2 | 709.3 | 748.4 | 222.7 | 109.3 | 111.3 | 101.0 | 78.3 |
| 85° | 14.4 | 12.4 | 26.8 | 68.0 | 156.7 | 132.0 | 37.1 | 28.9 | 45.4 | 47.4 | 33.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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 CATALOG NUMBER: ISS-SA1D-740-U-T4FT

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 | 903.1 |
| 2.5° | 909.3 | 913.4 | 921.6 | 925.8 | 929.9 | 938.1 | 936.1 | 940.2 | 940.2 | 938.1 | 942.3 |
| 5° | 917.5 | 927.8 | 938.1 | 942.3 | 944.3 | 944.3 | 934.0 | 927.8 | 925.8 | 923.7 | 925.8 |
| 7.5° | 925.8 | 940.2 | 950.5 | 948.4 | 940.2 | 925.8 | 913.4 | 903.1 | 892.8 | 888.7 | 892.8 |
| 10° | 940.2 | 954.6 | 960.8 | 946.4 | 923.7 | 901.0 | 882.5 | 868.0 | 851.5 | 849.5 | 851.5 |
| 12.5° | 952.6 | 971.1 | 971.1 | 938.1 | 907.2 | 876.3 | 847.4 | 824.7 | 804.1 | 797.9 | 797.9 |
| 15° | 973.2 | 987.6 | 973.2 | 927.8 | 884.5 | 845.4 | 804.1 | 775.3 | 750.5 | 740.2 | 742.3 |
| 17.5° | 995.9 | 1006.2 | 969.1 | 911.3 | 859.8 | 808.2 | 754.6 | 715.5 | 696.9 | 686.6 | 688.7 |
| 20° | 1022.7 | 1024.7 | 969.1 | 890.7 | 822.7 | 754.6 | 696.9 | 668.0 | 655.7 | 649.5 | 651.5 |
| 22.5° | 1057.7 | 1049.5 | 962.9 | 863.9 | 775.3 | 701.0 | 647.4 | 639.2 | 639.2 | 639.2 | 645.4 |
| 25° | 1094.8 | 1072.2 | 952.6 | 828.9 | 713.4 | 637.1 | 616.5 | 626.8 | 635.0 | 635.0 | 639.2 |
| 27.5° | 1131.9 | 1094.8 | 931.9 | 777.3 | 641.2 | 591.7 | 600.0 | 616.5 | 624.7 | 624.7 | 628.9 |
| 30° | 1177.3 | 1121.6 | 907.2 | 707.2 | 573.2 | 560.8 | 581.4 | 602.1 | 614.4 | 614.4 | 618.6 |
| 32.5° | 1235.0 | 1144.3 | 870.1 | 635.0 | 527.8 | 534.0 | 556.7 | 579.4 | 593.8 | 597.9 | 600.0 |
| 35° | 1299.0 | 1175.2 | 818.5 | 554.6 | 496.9 | 513.4 | 532.0 | 552.6 | 564.9 | 569.1 | 569.1 |
| 37.5° | 1364.9 | 1206.2 | 750.5 | 486.6 | 470.1 | 492.8 | 511.3 | 521.6 | 529.9 | 529.9 | 529.9 |
| 40° | 1430.9 | 1222.7 | 661.8 | 433.0 | 443.3 | 476.3 | 492.8 | 488.7 | 486.6 | 480.4 | 482.5 |
| 42.5° | 1499.0 | 1235.0 | 567.0 | 393.8 | 416.5 | 457.7 | 470.1 | 459.8 | 443.3 | 433.0 | 435.0 |
| 45° | 1573.2 | 1253.6 | 488.7 | 364.9 | 389.7 | 441.2 | 453.6 | 433.0 | 412.4 | 395.9 | 391.7 |
| 47.5° | 1657.7 | 1284.5 | 418.6 | 338.1 | 373.2 | 430.9 | 443.3 | 414.4 | 387.6 | 364.9 | 360.8 |
| 50° | 1773.2 | 1331.9 | 364.9 | 319.6 | 362.9 | 424.7 | 435.0 | 397.9 | 367.0 | 338.1 | 336.1 |
| 52.5° | 1890.7 | 1367.0 | 327.8 | 303.1 | 350.5 | 412.4 | 424.7 | 385.6 | 348.5 | 317.5 | 313.4 |
| 55° | 1977.3 | 1362.9 | 294.8 | 286.6 | 334.0 | 395.9 | 414.4 | 371.1 | 323.7 | 294.8 | 290.7 |
| 57.5° | 2014.4 | 1278.3 | 268.0 | 272.2 | 315.5 | 375.3 | 397.9 | 348.5 | 305.2 | 280.4 | 278.3 |
| 60° | 1950.5 | 1142.3 | 249.5 | 255.7 | 294.8 | 348.5 | 367.0 | 332.0 | 292.8 | 270.1 | 268.0 |
| 62.5° | 1839.2 | 989.7 | 235.0 | 243.3 | 274.2 | 323.7 | 348.5 | 311.3 | 276.3 | 259.8 | 257.7 |
| 65° | 1575.2 | 822.7 | 220.6 | 228.9 | 255.7 | 299.0 | 332.0 | 299.0 | 263.9 | 247.4 | 245.4 |
| 67.5° | 1189.7 | 591.7 | 206.2 | 214.4 | 239.2 | 280.4 | 317.5 | 282.5 | 245.4 | 233.0 | 233.0 |
| 70° | 709.3 | 362.9 | 187.6 | 200.0 | 218.6 | 257.7 | 294.8 | 259.8 | 222.7 | 218.6 | 214.4 |
| 72.5° | 346.4 | 230.9 | 171.1 | 181.4 | 195.9 | 228.9 | 261.9 | 230.9 | 193.8 | 183.5 | 181.4 |
| 75° | 208.2 | 167.0 | 148.5 | 160.8 | 171.1 | 191.8 | 220.6 | 197.9 | 169.1 | 152.6 | 150.5 |
| 77.5° | 150.5 | 125.8 | 125.8 | 138.1 | 138.1 | 158.8 | 189.7 | 169.1 | 142.3 | 132.0 | 129.9 |
| 80° | 107.2 | 94.8 | 103.1 | 111.3 | 107.2 | 134.0 | 160.8 | 142.3 | 115.5 | 107.2 | 105.2 |
| 82.5° | 70.1 | 66.0 | 78.3 | 76.3 | 76.3 | 103.1 | 132.0 | 107.2 | 84.5 | 70.1 | 66.0 |
| 85° | 28.9 | 33.0 | 45.4 | 43.3 | 43.3 | 57.7 | 68.0 | 55.7 | 39.2 | 30.9 | 30.9 |
| 87.5° | 0.0 | 2.1 | 6.2 | 4.1 | 4.1 | 6.2 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-2
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-740-U-T3R-HSS**
 Description: STREETWORKS INF FLOOD

SHIELD, DRIVER PROGRAMMED @ 615mA.

Spectral Parameters

| | | | | | |
|---------------------------|---------|-----------|------|------|-------|
| CCT (K): | 3905 | CRI (Ra): | 71.2 | R9: | -29.7 |
| CIE u': | 0.2273 | R1: | 68.9 | R10: | 46.2 |
| CIE v': | 0.5024 | R2: | 77.0 | R11: | 68.8 |
| Duv: | -0.0008 | R3: | 84.0 | R12: | 45.6 |
| CIE x: | 0.3841 | R4: | 71.6 | R13: | 69.5 |
| CIE y: | 0.3774 | R5: | 68.9 | R14: | 90.7 |
| CIE z: | 0.2385 | R6: | 68.3 | | |
| Peak Wavelength (nm): | 443 | R7: | 78.7 | | |
| Dominant Wavelength (nm): | 579 | R8: | 52.2 | | |
| Purity: | 28.7 | | | | |
| Rf: | 71.7 | | | | |
| Rg: | 96.9 | | | | |



Test Conditions

Stabilization Time: 211M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.8/312%
 Sphere Temperature (°C): 24.1

REPORT NUMBER: SP1-2101-121-2

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 2.7 | 620 | 97577 | 25.4 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 4.8 | 625 | 90158 | 19.9 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 8.0 | 630 | 82240 | 14.9 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 13.3 | 635 | 74361 | 11.2 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 20.2 | 640 | 66994 | 8.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 28.5 | 645 | 60405 | 5.8 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 37.4 | 650 | 53806 | 3.9 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 44.9 | 655 | 47610 | 2.7 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 52.6 | 660 | 42018 | 1.8 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 58.4 | 665 | 36742 | 1.2 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.0 | 540 | 96845 | 63.1 | 670 | 32105 | 0.7 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.0 | 545 | 100829 | 67.1 | 675 | 27946 | 0.5 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 0.1 | 550 | 105648 | 71.8 | 680 | 24146 | 0.3 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 0.2 | 555 | 110017 | 75.1 | 685 | 21191 | 0.2 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 0.5 | 560 | 114586 | 77.9 | 690 | 18544 | 0.1 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 1.2 | 565 | 118987 | 79.1 | 695 | 16058 | 0.1 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 2.1 | 570 | 122326 | 79.5 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 2.9 | 575 | 125968 | 78.4 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 2.7 | 580 | 127613 | 75.8 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 2.0 | 585 | 129466 | 71.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 1.5 | 590 | 128813 | 66.6 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 1.3 | 595 | 126387 | 59.9 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 1.0 | 600 | 123477 | 53.2 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 1.1 | 605 | 118718 | 46.0 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 1.2 | 610 | 112091 | 38.5 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 1.7 | 615 | 105039 | 31.7 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: 10425.8 S/P: 1.47

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 29.3 | 620 | 97577 | 1.2 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 43.0 | 625 | 90158 | 0.8 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 60.8 | 630 | 82240 | 0.5 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 81.1 | 635 | 74361 | 0.3 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 99.6 | 640 | 66994 | 0.2 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 113.9 | 645 | 60405 | 0.1 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 122.6 | 650 | 53806 | 0.1 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 125.0 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 123.1 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.1 | 535 | 94097 | 117.3 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 107.0 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.9 | 545 | 100829 | 96.7 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 3.0 | 550 | 105648 | 86.4 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 9.3 | 555 | 110017 | 75.2 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 23.0 | 560 | 114586 | 64.0 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 45.7 | 565 | 118987 | 53.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 75.5 | 570 | 122326 | 43.2 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 93.8 | 575 | 125968 | 34.3 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 79.3 | 580 | 127613 | 26.3 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 51.3 | 585 | 129466 | 19.8 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 35.6 | 590 | 128813 | 14.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 26.0 | 595 | 126387 | 10.1 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 19.3 | 600 | 123477 | 7.0 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 16.8 | 605 | 118718 | 4.7 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 17.7 | 610 | 112091 | 3.0 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 21.4 | 615 | 105039 | 1.9 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

REPORT NUMBER: SP1-2101-121-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3927.2 M/P: 0.55

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 2304 | 0.0 | 490 | 19043 | 15.8 | 620 | 97577 | 0.1 | 750 | 4830 | 0.0 | 880 | 3505 | 0.0 |
| 365 | 2150 | 0.0 | 495 | 26606 | 22.0 | 625 | 90158 | 0.0 | 755 | 4664 | 0.0 | 885 | 2991 | 0.0 |
| 370 | 2146 | 0.0 | 500 | 36376 | 29.2 | 630 | 82240 | 0.0 | 760 | 4006 | 0.0 | 890 | 2327 | 0.0 |
| 375 | 2332 | 0.0 | 505 | 47714 | 36.6 | 635 | 74361 | 0.0 | 765 | 3715 | 0.0 | 895 | 2775 | 0.0 |
| 380 | 2527 | 0.0 | 510 | 58741 | 42.2 | 640 | 66994 | 0.0 | 770 | 3696 | 0.0 | 900 | 2141 | 0.0 |
| 385 | 2304 | 0.0 | 515 | 68716 | 44.9 | 645 | 60405 | 0.0 | 775 | 3117 | 0.0 | 905 | 2421 | 0.0 |
| 390 | 2064 | 0.0 | 520 | 77136 | 44.9 | 650 | 53806 | 0.0 | 780 | 3062 | 0.0 | 910 | 2200 | 0.0 |
| 395 | 1856 | 0.0 | 525 | 83567 | 42.4 | 655 | 47610 | 0.0 | 785 | 2907 | 0.0 | 915 | 2716 | 0.0 |
| 400 | 1856 | 0.0 | 530 | 89283 | 38.6 | 660 | 42018 | 0.0 | 790 | 2655 | 0.0 | 920 | 2656 | 0.0 |
| 405 | 2374 | 0.0 | 535 | 94097 | 33.9 | 665 | 36742 | 0.0 | 795 | 2467 | 0.0 | 925 | 2671 | 0.0 |
| 410 | 4084 | 0.2 | 540 | 96845 | 28.3 | 670 | 32105 | 0.0 | 800 | 2609 | 0.0 | 930 | 3292 | 0.0 |
| 415 | 8543 | 0.6 | 545 | 100829 | 23.4 | 675 | 27946 | 0.0 | 805 | 2293 | 0.0 | 935 | 3188 | 0.0 |
| 420 | 18394 | 2.1 | 550 | 105648 | 19.0 | 680 | 24146 | 0.0 | 810 | 2188 | 0.0 | 940 | 1997 | 0.0 |
| 425 | 37987 | 5.9 | 555 | 110017 | 14.8 | 685 | 21191 | 0.0 | 815 | 2386 | 0.0 | 945 | 2623 | 0.0 |
| 430 | 67605 | 14.3 | 560 | 114586 | 11.3 | 690 | 18544 | 0.0 | 820 | 2712 | 0.0 | 950 | 2969 | 0.0 |
| 435 | 102160 | 27.3 | 565 | 118987 | 8.4 | 695 | 16058 | 0.0 | 825 | 2473 | 0.0 | 955 | 2277 | 0.0 |
| 440 | 135103 | 45.1 | 570 | 122326 | 6.0 | 700 | 14133 | 0.0 | 830 | 1969 | 0.0 | 960 | 4267 | 0.0 |
| 445 | 140126 | 55.3 | 575 | 125968 | 4.2 | 705 | 12309 | 0.0 | 835 | 1917 | 0.0 | 965 | 2034 | 0.0 |
| 450 | 102339 | 47.2 | 580 | 127613 | 2.9 | 710 | 11142 | 0.0 | 840 | 2248 | 0.0 | 970 | 3586 | 0.0 |
| 455 | 58751 | 30.8 | 585 | 129466 | 1.9 | 715 | 10143 | 0.0 | 845 | 2266 | 0.0 | 975 | 2505 | 0.0 |
| 460 | 36892 | 21.7 | 590 | 128813 | 1.3 | 720 | 9072 | 0.0 | 850 | 2558 | 0.0 | 980 | 2666 | 0.0 |
| 465 | 24637 | 16.1 | 595 | 126387 | 0.8 | 725 | 8130 | 0.0 | 855 | 2767 | 0.0 | 985 | 2934 | 0.0 |
| 470 | 16738 | 12.0 | 600 | 123477 | 0.5 | 730 | 7149 | 0.0 | 860 | 2826 | 0.0 | 990 | 4120 | 0.0 |
| 475 | 13456 | 10.3 | 605 | 118718 | 0.3 | 735 | 6311 | 0.0 | 865 | 2385 | 0.0 | 995 | 3858 | 0.0 |
| 480 | 13081 | 10.5 | 610 | 112091 | 0.2 | 740 | 5711 | 0.0 | 870 | 3194 | 0.0 | 1000 | 3405 | 0.0 |
| 485 | 14734 | 12.1 | 615 | 105039 | 0.1 | 745 | 5111 | 0.0 | 875 | 3189 | 0.0 | | | |

Summary

$R_f = 71.7$
 $R_g = 96.9$
 CIE $R_a = 71.2$
 $R_g = -29.7$



Color Vector Graphics

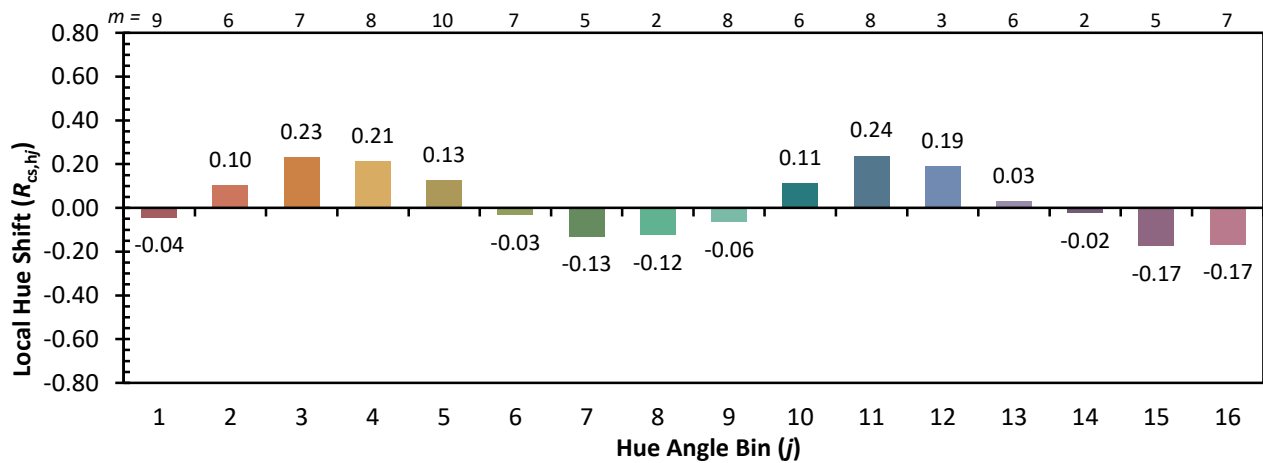


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 55 | CES51 = 86 | CES76 = 45 |
| CES02 = 61 | CES27 = 80 | CES52 = 87 | CES77 = 68 |
| CES03 = 30 | CES28 = 79 | CES53 = 74 | CES78 = 49 |
| CES04 = 70 | CES29 = 51 | CES54 = 81 | CES79 = 77 |
| CES05 = 47 | CES30 = 60 | CES55 = 80 | CES80 = 75 |
| CES06 = 50 | CES31 = 56 | CES56 = 69 | CES81 = 75 |
| CES07 = 40 | CES32 = 52 | CES57 = 67 | CES82 = 90 |
| CES08 = 39 | CES33 = 62 | CES58 = 69 | CES83 = 85 |
| CES09 = 29 | CES34 = 65 | CES59 = 86 | CES84 = 87 |
| CES10 = 74 | CES35 = 81 | CES60 = 91 | CES85 = 83 |
| CES11 = 57 | CES36 = 92 | CES61 = 85 | CES86 = 72 |
| CES12 = 63 | CES37 = 74 | CES62 = 81 | CES87 = 77 |
| CES13 = 42 | CES38 = 69 | CES63 = 72 | CES88 = 77 |
| CES14 = 74 | CES39 = 92 | CES64 = 69 | CES89 = 72 |
| CES15 = 71 | CES40 = 86 | CES65 = 64 | CES90 = 75 |
| CES16 = 46 | CES41 = 84 | CES66 = 63 | CES91 = 91 |
| CES17 = 49 | CES42 = 75 | CES67 = 60 | CES92 = 66 |
| CES18 = 56 | CES43 = 70 | CES68 = 67 | CES93 = 80 |
| CES19 = 72 | CES44 = 98 | CES69 = 77 | CES94 = 56 |
| CES20 = 65 | CES45 = 80 | CES70 = 57 | CES95 = 72 |
| CES21 = 86 | CES46 = 77 | CES71 = 53 | CES96 = 78 |
| CES22 = 78 | CES47 = 74 | CES72 = 84 | CES97 = 83 |
| CES23 = 92 | CES48 = 66 | CES73 = 47 | CES98 = 73 |
| CES24 = 91 | CES49 = 76 | CES74 = 96 | CES99 = 63 |
| CES25 = 72 | CES50 = 85 | CES75 = 52 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)